

EPA Feedback received 04/25/2022		
	Document Location	CRC Response
<b>Injection Well Construction</b>		
Please reconcile the following differences between Attachment G and Table 7 of the Narrative:		
o The burst rating of the packer is 8,160 psi on Table 7 of Attachment A and 8,000 psi on page G3, and	COP p5	Removed from Att A, updated packer type, 7500 psi differential pressure rating
o The tensile strength of the packer on page G3 has a typo, with an extra 0 in "10,0000."	COP p5	Updated to 200,000 lbs
There are several discrepancies in the descriptions of Well 357-7R between tables 5, 6, and 7 of Attachment A and the tables on pages G2 and G3 of Attachment G. Please make the tables and the well bore diagram in Attachment G (if needed) consistent.	COP p3-5	Removed from Att A, updated and corrected
o Attachment A, Table 5, and the Table on page G2 indicate that the intermediate casing in Well 357-7R is to a depth of 3,517 ft; on Table 6, this depth is 3,516 ft.	COP p3	Corrected to 3517'
o The conductor casing material is H-40 in Attachment A, Table 5 and Attachment G, and it is J-55 in Table 6.	COP p3	Corrected/removed, conductor grade not specified or relevant
o The surface casing material is H-40 in Table 5 and in Attachment G, pg. 2, and it is H-80 in Table 6. •	COP p3	Corrected to H-40
Please verify that the annulus between the tubing and the long string casing is filled with a non corrosive fluid, as required by 40 CFR 146.88(c), and describe the fluid.	COP p5	Added Annular Fluid section specifying that corrosion inhibitor and biocide additives will be added to the 4% KCL annular fluid
Please confirm that the surface casing extends through the base of the lowermost USDW, in accordance with 40 CFR 146.86(b)(2). If it does not, please explain how the well will otherwise meet the requirements of 40 CFR 146.86(a)(1).	COP p3	Intermediate casing isolates USDW, see Protection of USDW
Is Well 357-7R equipped with real-time surface monitoring equipment and alarms and, if so, are these connected to automatic shutoff systems, as required at 146.88(e)(2)? If so, please describe these in Attachment G and describe how the safety valves and shut-off devices will be linked to the continuous injection and annulus monitoring system. If not, please update Attachment G to include these required components.	COP p5	Added Alarms and Shut-off Devices section
Please provide additional detail about the construction procedures for Well 357-7R, for example, to be consistent with the level of detail in the construction procedures for Well 355-7R on page 2 of Attachment A2.	COP p1-2	Complete
Please include relevant information from the narrative (Attachment A) about the construction of the well into Attachment G for completeness.	COP p1-3	Complete
In Figure 1 of Attachment G (Well 357-7R casing diagram), the top of cement for the existing bottom-hole plug is listed at 8,794 ft MD / 8,785 ft TVD while the base of the open perforated interval is 8,802 ft. Please revise Figure 1 to correct this inconsistency.	POT document	Discrepancy is from record-keeping error in 1993, at time well was perforated. CTV will confirm plugback depth in pre-operational testing (POT)
Please label the well diagram to indicate that the well is a Class VI (i.e., not Class II) well.	Injection & Monitoring Well Schematics v2	Well is currently Class II. Well schematic does not include this label.
Please explain how the injection well's design will mitigate potential shallow compression resulting from land subsidence and comply with the requirement to cement to the surface.	COP p3	Added comment to that subsidence is not expected or historically observed around the injectors, and CTV will acquire CBL
What is the surface elevation (i.e., relative to mean sea level) at the location of the well?	COP p1	792' above MSL
Please discuss the duration that free phase water is expected to be present at the beginning of the injection phase and the corresponding impact on tubing integrity. For example, please provide additional discussion regarding the study of this phenomenon, e.g., in existing, nearby CO2 injection wells.	COP p4	CRA tubing material selection and short duration result in no/minimal impact to tubing integrity
Please include alternative pressure monitoring devices to those listed in Tables 10, 11, 12, and 14 of the QASP with pressure field gauges with higher pressure ratings to function at the maximum surface injection pressure of 3,800 psi safely and reliably.		3800 psi in Table 8 refers to the max pressure at surface based on frac gradient. However, the surface injection system should not deliver this pressure. Will also upgrade pressure rating of equipment in QASP to 5000 psi.
Please provide the most recent SAPT reports for the well.	COP p9	Complete
<b>Injection Well Pre-Operational Testing</b>		
The CBL provided with the Logging and Testing plan does not cover the entire injection and confining zones. Please provide a CBL that covers the entire injection and confining zones and explain the varying amplitude and seismogram signal throughout both zones.	POT document	A CBL of the full well will be acquired when the tubing is removed during pre-operational testing
<b>Well Stimulation</b>		
To avoid the need for a permit modification if stimulation were to become necessary in the future, EPA requests that CTV prepare a draft stimulation plan. EPA can provide some additional guidance about the content of the plan, but anticipates that the plan should describe:	Attachment I - Stimulation Plan_v1	CTV does not intend to address stimulation at this time
o The stimulation fluids to be used, including any additives (e.g., corrosion inhibitors, clay inhibitors, biocides, complexing agents, or surfactants) or diverting agents; and	Attachment I - Stimulation Plan_v1	
o Step-by-step procedures that would be employed during stimulation.	Attachment I - Stimulation Plan_v1	
<b>Injection Well Plugging Plan</b>		
Please include "flushing" among the steps to be completed prior to injection well plugging, in accordance with 40 CFR 146.92(a).	COP p12	Complete, see Plugging Procedures step 2
Please revise the cement volume for Plug #1 to ensure at least 100 ft of cement coverage above the uppermost perforation.	COP p13	Complete, see Table 5
Please reconcile the inconsistency in depth between Plugs #2, #3, and the Base of the USDW as shown in Table 1 of Attachment D and Figure 1 of Attachment G.	COP p13	Complete, see Table 5
Please correct the typo in the second bullet at the bottom of Attachment D, pg. 3, referring to the ">10,000 mg/L DTS."	COP p15	Corrected
Please provide a plugging schematic and label the USDW and other relevant formations (i.e., the injection and confining zones) and perforations on the plugging diagram.	Injection & Monitoring Well Schematics v2	Complete
• Please confirm that the Class G cement blend is the same as the Class G Portland cement that was used in the well's construction, and that this cement is CO2-resistant.	COP p12	Added to Information on Plugs section